

TAC Meeting

NYSDEC / USEPA Region 2
Northrop Grumman Systems Corporation
NAVFAC

October 29, 2015



Northrop Grumman Discussion Topics

- Status of Northrop Grumman/Navy Cooperation
 - Navy Wells sampled by Northrop Grumman
 - Additional analytical parameters analyzed for
 - Coordination on Monitoring Well RE108D2 Hot Spot
- Update on Northrop Grumman OU2 Activities
 - Status of Submittals Pursuant to OU2 Consent Order
 - ONCT System OM&M
 - Groundwater Monitoring
 - ONCT Effectiveness

Imagine the result



Status of Northrop Grumman/ Navy Cooperation

- Periodic Technical Exchange Meetings with Navy (August 11, 2015) - *Ongoing*
- Northrop Grumman continues sampling additional wells installed by Navy (per Navy request May 6, 2015) and provides results to Navy for reporting - *Ongoing*
- Northrop Grumman collected water samples from ONCT system for analysis of additional parameters during 3Q sampling event (per Navy request August 6, 2015) - *New*
 - VOCs and 1,4-dioxane (part of Northrop Grumman's program)

Imagine the result



Navy Wells Sampled by Northrop Grumman

- Sampled in 2Q and part of continuing program:
 - 7 outpost wells – quarterly frequency
 - 2 monitoring wells – semiannual frequency
 - (MWD Northwest Well Field, SFWD Well Field 6)
- Sampled in 3Q and part of continuing program:
 - 5 outpost wells – quarterly frequency
 - (MWD Northwest Well Field, SFWD Well Field 6)
- Planned to be sampled and added to program in 4Q:
 - Up to 12 wells to be added
(11 semiannual plume monitoring wells, 1 quarterly outpost well [SFWD Well Field 6])
 - Total of up to 24 wells planned for sampling in 4Q

Imagine the result



3Q ONCT System Sampling

- VOCs and 1,4-Dioxane



2015 Preliminary Data

Table 1 . Concentrations of Total VOCs and 1,4-Dioxane in Water Samples Collected from ONCT Remedial System Third Quarter 2015, Northrop Grumman Systems Corporation, Bethpage, New York.

Constituent (Units in µg/L)	Sample ID:	Well 1	Well 3R	T96 EFFLUENT	Well 17	Well 18	Well 19	T102 EFFLUENT
	Location ID:	Well 1	Well 3R	Tower 96 Effluent	Well 17	Well 18	Well 19	Tower 102 Effluent
	Date:	9/9/2015	9/9/2015	9/9/2015	9/9/2015	9/9/2015	9/9/2015	9/9/2015
1,4-Dioxane		3.4	8.5	6.8	2.8	2.2	1.9	2.8
Total VOCs		900	620	0.66	220	83	180	0

Imagine the result



Status of Northrop Grumman/ Navy Cooperation

- Other
 - Modeling support for local areas of interest
 - Potential Applications :
 - Develop new trigger values for re-purposing original outpost wells (SFWD Well Fields 1 and 3, TOH (LWD) Well 3, NYAW Seamans Neck Road Well Field)

Imagine the result



Update on Northrop Grumman OU2 Activities

- Status of OU2 Consent Order Submittals
- ONCT System OM&M
- Groundwater Monitoring

Imagine the result



Status of Northrop Grumman OU2 Consent Order Submittals

- Citizen Participation Plan
 - Status: conditionally approved by NYSDEC August 25, 2015
- 2011-2013 ONCT Effectiveness Study
 - Status: Submitted May 26, 2015 to NYSDEC (Appendix F of October 2014 Periodic Review)
- Remedial Design/Remedial Action (RD/RA) Work Plan
 - Status: Submitted to NYSDEC

Imagine the result

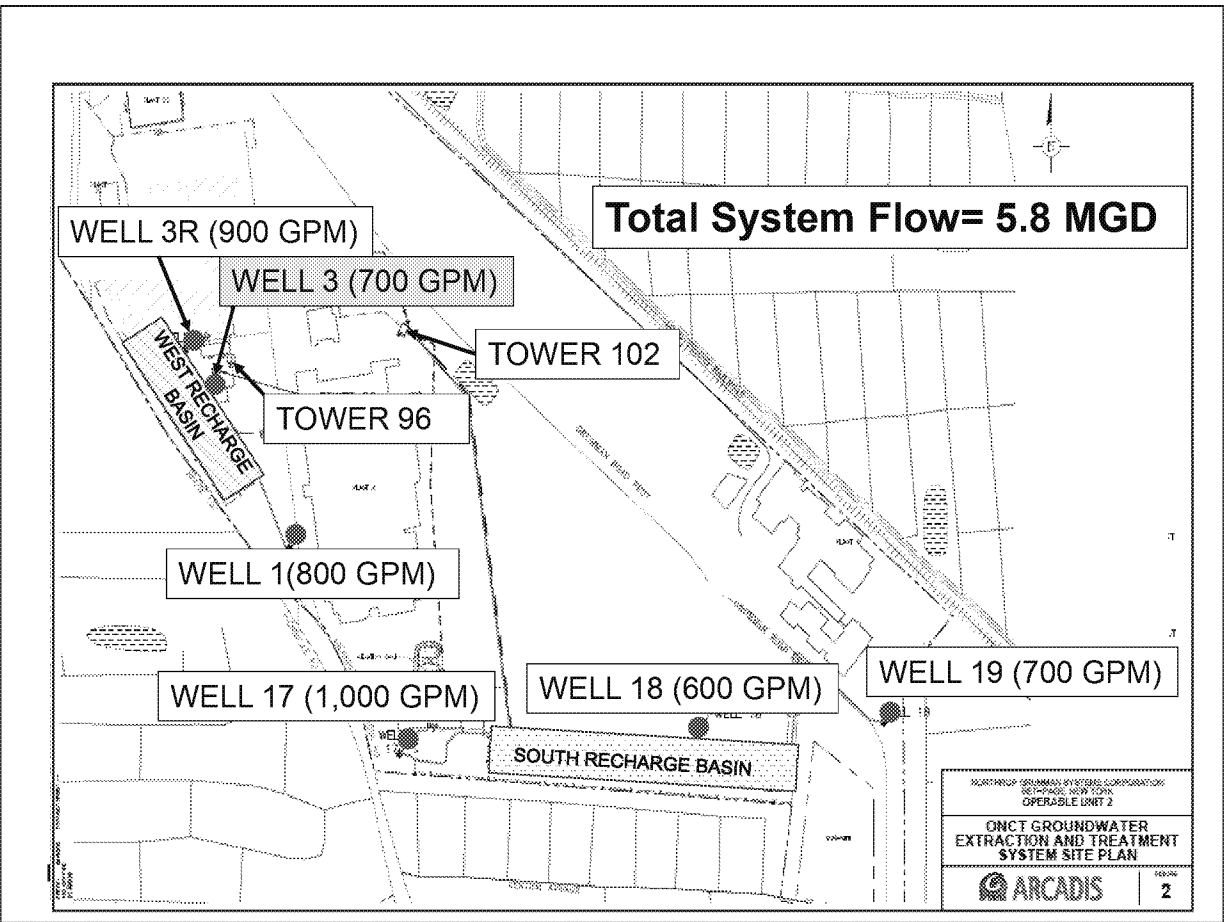


Status of Northrop Grumman OU2 Consent Order Submittals

- RD/RA Work Plan includes:
 - OM&M Plan
 - Status: May 2014 OM&M Plan submitted and under review by NYSDEC
 - Groundwater Monitoring Plan (Appendix A of OM&M Plan)
 - Status: conditionally approved by NYSDEC August 25, 2015
 - Plan for Coordination with Navy on RE108D2 Hot Spot
 - Status: Submitted June 30, 2015

Imagine the result





ONCT System OM&M

- Uptime & performance (2014 thru 2Q-2015)
 - Approximately 95% uptime except for T96/T102 periodic system/well maintenance and site-wide electrical disruptions
 - Maintenance activities include T96 air stripper distribution tray cleaning, gauge/meter/valve replacement, boiler maintenance, VFD repairs, carbon regen system repairs, meter calibration, T102 condensate cooling water line replacement, duct boot repairs
 - Recent well upgrades (2014 through 2Q-2015)
 - Wells 17&19 - Installation of new submersible pumps/motors, drop pipes, VFDs
 - $\geq 99\%$ treatment efficiency, discharge is compliant

Imagine the result



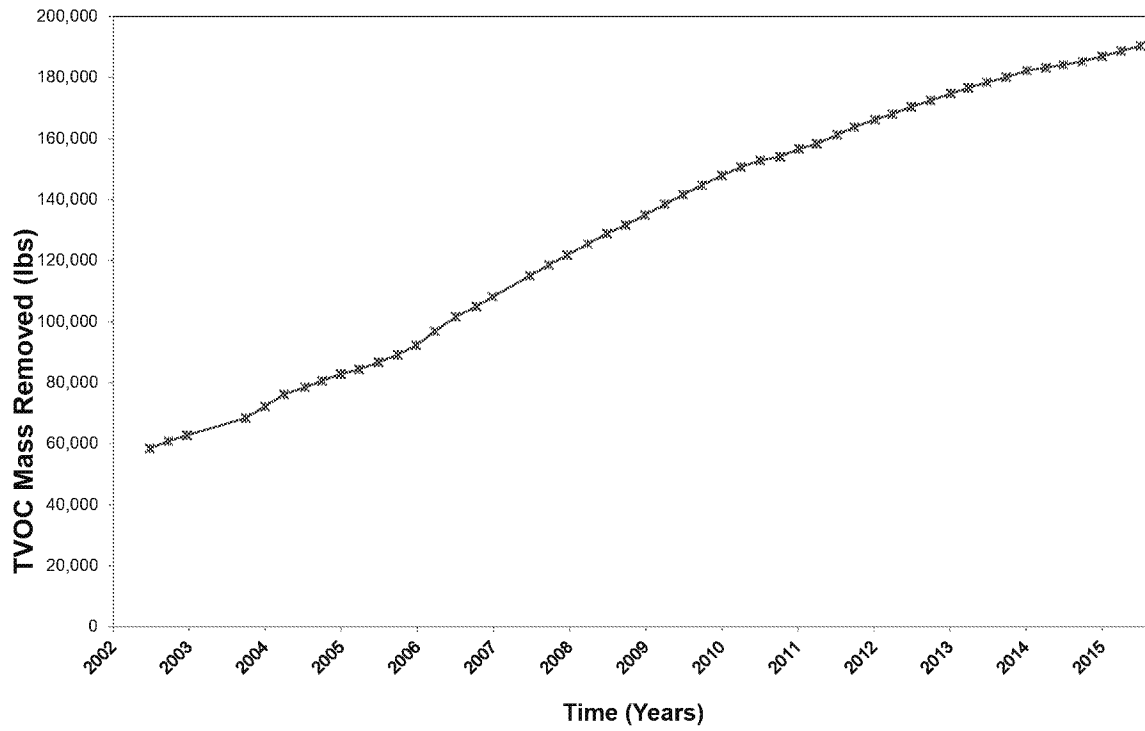
ONCT System OM&M – cont'd

- Cumulative Mass Removal
 - 190,000 lbs VOCs removed from start up of ONCT System in 4Q 1998 through 2Q-2015
- Key trend graphs from 2014 Annual Report
 - Long-term declining to flat trends for remedial wells, except for recent increases in Wells 1 and 3R (due to re-orientating flow patterns after Well 3R replaced Well 3)
 - Long-term declining to flat trends for monitoring wells near Site boundary ONCT system effective in maintaining plume control
- Wells 1 and 3R update (through 3Q-2015)
 - Recovering more VOC mass than Wells 1 and 3 (projected)

Imagine the result



**Cumulative Mass Removed, On-Site Groundwater Remedial System,
Northrop Grumman Systems Corporation, Bethpage, New York**



Imagine the result



Groundwater Monitoring

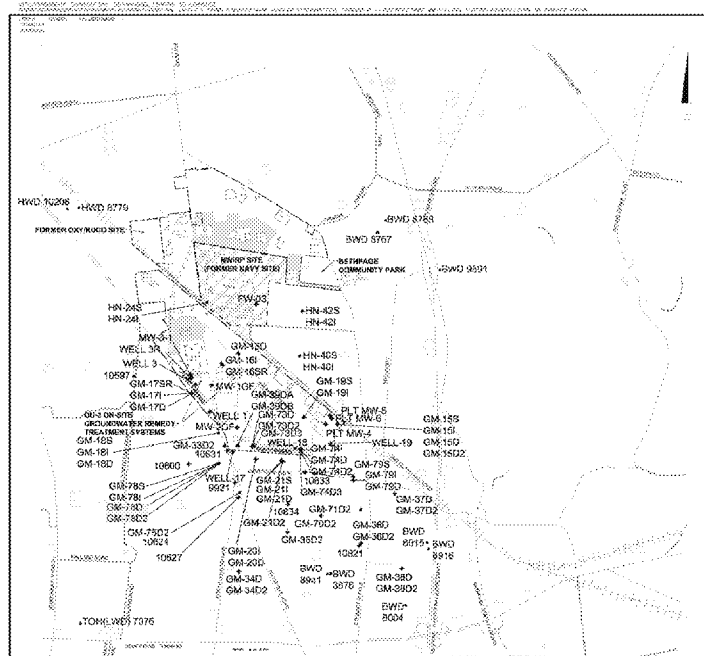
- June 2015 Addendum, conditionally approved by NYSDEC
 - Includes addition of 6 Northrop Grumman monitoring wells and 9 Navy monitoring wells for sampling and/or water level measurements
 - Includes removal of TT-101 Cluster from Northrop's sampling program
 - Includes re-purposing original 15 outpost wells to plume monitoring and on a semiannual basis
 - Includes addition of 1,4-dioxane for analysis

Imagine the result



Well Locations (North)

- 6 Monitoring Wells added to program (highlighted)

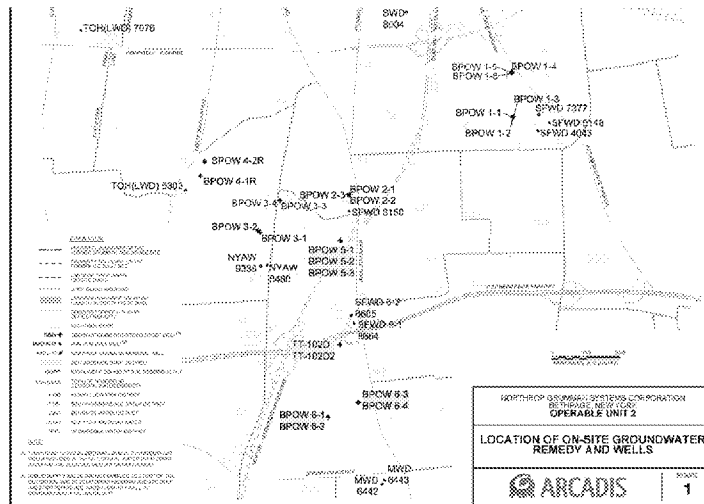


Imagine the result


ARCADIS

Well Locations (South)

- 15 original Outpost Wells:
Well clusters
BPOW 1, 2, 3, and 4
- NOTE: Navy wells added to GWMP in 2Q are highlighted for reference



Imagine the result



3Q Sampling

1, 4 Dioxane in Outpost Wells



Table 2. Concentrations of 1,4-Dioxane in Water Samples Collected from Outpost Wells in the Third Quarter 2015, Northrop Grumman Systems Corporation, Bethpage, New York.

BPOW1-1								
	Sample ID: BPOW1-1	BPOW1-2	BPOW1-3	BPOW1-4	BPOW1-5	BPOW1-6	BPOW2-1	BPOW2-2
Constituent	Location ID: BPOW1-1	BPOW1-2	BPOW1-3	BPOW1-4	BPOW1-5	BPOW1-6	BPOW2-1	BPOW2-2
(Units in µg/L)	Date: 8/11/2015	8/11/2015	8/13/2015	8/18/2015	8/18/2015	8/17/2015	9/9/2015	8/14/2015
1,4-Dioxane	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	0.095J	<0.21
BPOW2-3								
	Sample ID: BPOW2-3	BPOW3-1	BPOW3-2	BPOW3-3	BPOW3-4	BPOW 3-4 ⁽¹⁾	BPOW4-1R	BPOW4-2R
Constituent	Location ID: BPOW2-3	BPOW3-1	BPOW3-2	BPOW3-3	BPOW3-4	REP082515BT1	BPOW4-1R	BPOW4-2R
(Units in µg/L)	Date: 8/14/2015	8/12/2015	9/17/2015	8/25/2015	8/25/2015	8/25/2015	8/26/2015	8/26/2015
1,4-Dioxane	<0.21	0.28	1.1	0.6	0.77J	0.32J	0.68	0.41

Imagine the result



3Q Sampling

1, 4 Dioxane in OU3 Hot Spot Monitoring Wells



2016 Preliminary Data

Table 3. Concentrations of 1,4-Dioxane in Water Samples Collected from OU3 Hot Spot Monitoring wells in the Third Quarter 2015, Northrop Grumman Systems Corporation, Bethpage, New York

Constituent (Units in µg/L)	Sample ID: RW-21-MW-1 RW-21-MW-2 Location ID: RW-21-MW-1 RW-21-MW-2	
	Date: 9/15/2015	9/22/2015
1,4-Dioxane	17.7	24.3

Imagine the result

